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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/693,912	10/28/2003	Nobuo Ishii	01165.0908	3964
22852	7590	07/13/2005		
FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER LLP 901 NEW YORK AVENUE, NW WASHINGTON, DC 20001-4413			EXAMINER CHEN, SHIH CHAO	
			ART UNIT 2821	PAPER NUMBER

DATE MAILED: 07/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

H.A

Office Action Summary	Application No. 10/693,912	Applicant(s) ISHII ET AL.	
	Examiner Shih-Chao Chen	Art Unit 2821	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 April 2005.
 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) ☐ Claim(s) _____ is/are allowed.
 6) ☒ Claim(s) 1-6,8 and 10-12 is/are rejected.
 7) ☐ Claim(s) 7 and 9 is/are objected to.
 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
 10) ☒ The drawing(s) filed on 02 December 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☒ All b) ☐ Some * c) ☐ None of:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>1/27/05 & 4/4/05</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. Figure 3& 9 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

2. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

Claim Objections

3. Claim 1 is objected to because of the following informalities: in line 1, "A slot, array antenna" should be changed to --A slot array antenna--. Appropriate correction is required.
4. Claim 9 is objected to because of the following informalities: in lines 1-2, "a slit having a variable width" should be changed to --a coupling window having a variable width—(See page 16, AMENDMENT TO THE SPECIFICATION). Appropriate correction is required.

Specification

5. The disclosure is objected to because of the following informalities: on page 5, line 26, "DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS" should not be deleted (See page 7, line 1, AMENDMENT TO THE SPECIFICATION).

Appropriate correction is required.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1, 4-6, 8 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Uematsu et al. (U.S. Patent No. 5,579,019).

Regarding claim 1, Uematsu et al. teaches in figures 1-16 a slot array antenna comprising: a power feeding waveguide [2] for feeding microwave power; and a plurality

of rectangular radiating waveguides [1A-1L] connected to a plurality of windows [7] which are disposed along the longitudinal direction of the power feeding waveguide, so as to guide the microwave power from the plurality of windows to the outside of the antenna; wherein each of the radiating waveguides has a plurality of slots [4] disposed along the longitudinal direction of the radiating waveguide; and the interval "d" between adjacent slots is substantially the same as the wavelength λ_m of the microwave in the rectangular radiating waveguide (See col. 4, lines 15-21 & FIG. 6B).

Regarding claim 4, Uematsu et al. teaches in figures 1-16 a slot array antenna according to claim 1, wherein the power-feeding waveguide [2] is a rectangular waveguide (See FIG. 1).

Regarding claim 5, Uematsu et al. teaches in figures 1-16 a slot array antenna according to claim 1, wherein a traveling wave is to be generated in the radiating waveguide [1A-1L].

Regarding claim 6, Uematsu et al. teaches in figures 1-16 a slot array antenna according to claim 1, wherein a matching slot [9] is disposed at the terminal end of the radiating waveguide.

Regarding claim 8, Uematsu et al. teaches in figures 1-16 a slot array antenna according to claim 1, wherein the slots [4] provided on one side of the radiating waveguide [1A-1L] are such that they form an inclination angle of 45° relative to the center axis in the longitudinal direction of the radiating waveguide (See FIG. 1).

Regarding claim 10, Uematsu et al. teaches in figures 1-16 a slot array antenna according to claim 1, wherein the slots [4] formed on one side of the radiating

waveguide [1A-1L] are slot pairs each of which is inclined at about 45° with respect to the traveling direction of the electromagnetic field.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 2 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Uematsu et al. (Cited above).

Uematsu et al. discloses the claimed invention except for the interval "d" between adjacent slots is in the range of $0.75 < d/\lambda_m < 1.25$. It would have been obvious to one having ordinary skill in the art at the time the invention was made to $0.75 < d/\lambda_m < 1.25$, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art.

10. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Uematsu et al. (Cited above).

Uematsu et al. discloses the claimed invention except for the dielectric material is 1 or more. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have high dielectric constant, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art.

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11. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Uematsu et al. (Cited above) in view of Watanabe et al. (U.S. Patent No. 6,158,383).

Uematsu et al. teaches every feature of the claimed invention except for a plasma processing chamber for subjecting an object to a plasma treatment; and antenna means for guiding microwave power into the plasma processing chamber.

Watanabe et al. teaches in figures 1-4 a plasma processing chamber [1] for subjecting an object [10] to a plasma treatment; and antenna means [7] for guiding microwave power into the plasma processing chamber.

Since one of ordinary skill in the art would have recognized the benefit of various alternations and modifications, it would have been obvious to provide Uematsu et al. with the plasma processing chamber for subjecting an object to a plasma treatment; and antenna means for guiding microwave power into the plasma processing chamber as taught by Watanabe et al. in order to in a plasma processing apparatus, microwaves are radiated from a slot antenna set, a plasma is generated using the microwave and a sample is processed by the plasma (See Abstract).

Allowable Subject Matter

12. Claims 7 and 9 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shih-Chao Chen whose telephone number is (571) 272-1819. The examiner can normally be reached on Monday-Friday from 7 AM to 4:30 PM, First Fri. off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don Wong can be reached on (571) 272-1834. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Shih-Chao Chen
Primary Examiner
Art Unit 2821

Shih-Chao Chen
SHIH-CHAO CHEN
PRIMARY EXAMINER

SXC
July 7, 2005